

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/598,954	HARA ET AL.	
	Examiner Eva Yi Zheng	Art Unit 2634	

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 2/3/05.
2.  The allowed claim(s) is/are 1-23.
3.  The drawings filed on 03 June 2004 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some\*    c)  None    of the:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 8/30/00, 6/22/00
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

**DETAILED ACTION*****Allowable Subject Matter***

1. Claims 1-23 are allowed.
2. The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggest a filter circuit performs a sampling on a series of analog input signals, inputs them on a time series, and simultaneously multiplies a time-series analog sampling signal by a coefficient before computing. The filter circuit comprising a plurality of unit circuits including a first stage unit circuit, at least one second stage unit circuit, and a final stage unit circuit mutually connected in series, each of the first stage unit circuit, the at least one second stage unit circuit, and the final stage unit circuit are consecutively arranged, each of the unit circuits comprising a computing means; the computing means in each of the first stage unit circuit and the at least one second stage unit circuit successively transmitting to a respective unit circuit of an immediately following stage a computing result of a) an analog input signal sampled at a same sampling timing and b) a coefficient predetermined for each of the computing means, the computing result of the computing means of each of the first stage unit circuit and the at least one second stage unit circuit being computed by adding a value of a residual, respectively input to each of the first stage unit circuit and at least one second stage unit circuit from a respective unit circuit of a previous stage, and an analog computing result based on the analog input signal and a coefficient for the computing means, to obtain an added value, low-bit quantizing the added value to obtain a quantization result, subtracting a D/A converted value of the

quantization result from the added value to obtain a residual value, and successively transmitting the quantization result as the computing result and the residual value to a following circuit, the computing means of each the first stage unit circuit and at least one second stage unit circuit mutually adding the computing result and a computing result of a unit circuit of an immediately preceding stage so as to compute in the final stage unit circuit a cumulative value of computing results of all the coefficients and time-series analog sampling signals whose number corresponds to that of the coefficients, and the cumulative value is outputted as digital data, wherein the previous stage residual and computing result values for the first stage unit circuit are default values.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng  
Examiner  
Art Unit 2634

March 9, 2005



SHUANG LIU  
PRIMARY EXAMINER